

Sets: Definition, example, types,  $\mathbb{N}$ ,  $\mathbb{Z}$ ,  $\mathbb{Q}$ ,  $\mathbb{R}$ ,  $\mathbb{C}$ , Intervals  
 Equal sets, null set, Subsets, Cardinal number, finite &  
 infinite set, Power set, Union, intersection, difference,  
 complement, Venn diagram

## Set Identities:

### Identity

$$A \cap U = A, \quad A \cup \phi = A \quad ] \quad - \text{Identity laws}$$

$$A \cup U = U, \quad A \cap \phi = \phi \quad ] \quad - \text{Domination laws}$$

$$A \cup A = A, \quad A \cap A = A \quad ] \quad - \text{Idempotent laws}$$

$$\overline{(\overline{A})} = A \quad ] \quad - \text{Complementation law}$$

$$A \cup B = B \cup A, \quad A \cap B = B \cap A \quad ] \quad - \text{Commutative laws}$$

$$A \cup (B \cap C) = (A \cup B) \cap C$$

$$A \cap (B \cup C) = (A \cap B) \cup C \quad ] \quad - \text{Associative laws}$$

$$A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$$

$$A \cap (B \cup C) = (A \cap B) \cup (A \cap C) \quad ] \quad - \text{Distributive laws}$$

$$\overline{A \cap B} = \overline{A} \cup \overline{B}, \quad \overline{A \cup B} = \overline{A} \cap \overline{B} \quad ] \quad - \text{De Morgan's laws}$$

$$A \cup (A \cap B) = A$$

$$A \cap (A \cup B) = A \quad ] \quad - \text{Absorption laws}$$

$$A \cup \overline{A} = U$$

$$A \cap \overline{A} = \phi \quad ] \quad - \text{Complement laws}$$